

**Wildfire Risk Governance Committee**  
**System Hardening Project Approvals**

February 2, 2021

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Today's discussion will include mitigation recommendations, as well as additional remote grid projects to be scoped for 2021

The following 3 projects have recommended mitigations:

Order No.	CPZ	Work Bucket	Total MAVF Core Risk Value	Mean MAVF Core Risk Rank	Recommendation	WGC Request
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**WGC Decision**

1						Decision
2						Decision
3						Decision

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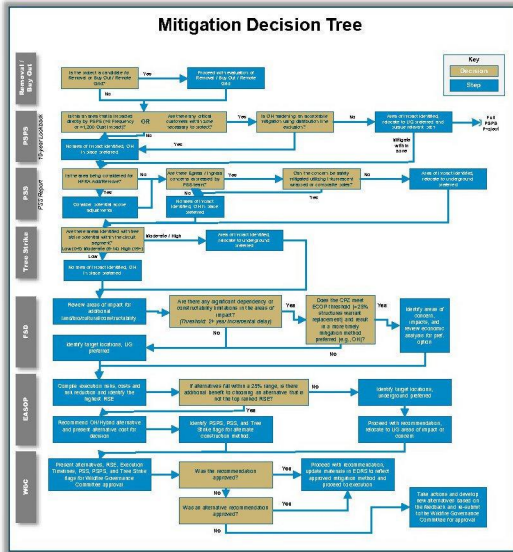
**WGC Inform**

1	35062374	Shingle Springs 21099372	CWSP Top 20%	19.55	227	Hybrid (8.29 mi)	Inform
2	35062375	Shingle Springs 21099372	CWSP Top 20%	23.78	227	Hybrid (9.48 mi)	Inform
3	35062376	Shingle Springs 210935598	CWSP Top 20%	33.98	159	Overhead (11.02 mi)	Inform

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	Key Questions	Outcome		
PPSP	Is this an area that is impacted directly by PPS (>8 Frequency or >1,200 Cust Impact)?	Y	N	4 events, OH preferred
	Are there any critical customers within zone necessary to protect?	Y	N	
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y	N	
PSS	Is the area being considered for HFRA Add/Remove?	Y	N	Ingress / Egress concerns
	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y	N	
Tree Strike	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y	N	Low
	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y	N	
FSD	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y	N	Hybrid Preferred
	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y	N	
		<b>Hybrid Preferred</b>		

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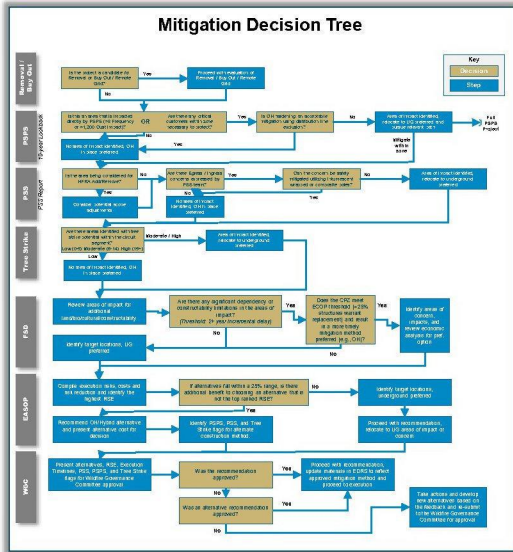
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Inform: CWSP TOP 20% – PM# 35062374 Shingle Springs 2109 LR 9372 Ph 1

Shingle Springs 2109 (7.57 Miles)		No System Hardening	Overhead Hardening	Under-grounding	Hybrid
Project Scope Risk Reduced After Mitigation		-	12.12	19.35	13.46
Project Scope Residual Risk Value		19.55	7.43	0.20	6.09
Overall Miles Installed		7.57 Existing OH	7.57	12.25	8.29
OH System Hardening Cost	\$1.8M/risk-mile	-	\$13.9M	-	\$12.4M (6.75 mi)
UG System Hardening Cost	\$7.1M/risk-mile	-	-	\$51.7M	\$5.6M (1.54 mi)
Line Removal Cost	-	-	-	-	-
Total Capital Cost (AAACE Class 5)		-	\$13.9M	\$51.7M	\$18.0M
Average O&M Cost (per year)		-	\$317k	\$160k	\$302k
NPV @ 6.8% discount rate		-	(-\$18.7M)	(-\$54.5M)	(-\$22.6M)
Primary Filter	\$ NPV per unit of risk (RSE)	-	(-\$1.5M) – 1 <sup>st</sup>	(-\$2.8M) – 3 <sup>rd</sup>	(-\$1.7M) – 2 <sup>nd</sup>
	PSS Preference (Ingress/egress/fire history)	-	Not Preferred	Preferred	Preferred
Secondary Filter	Strike Tree Potential	LOW (0-5)	Low Fall-In Risk	N/A	Low Fall-In Risk
	Ingress / Egress	LOW	Not preferred	Preferred	Preferred
	PSPS Mitigation (108 customers)	432 / 432 (0%)	432 / 432 (0%)	216 / 432 (50%)	432 / 432 (0%)
	Execution timeline (2021, 2022, 2022+)	-	2021	2022+	2022
	Other (Operational Considerations, etc.)	-	-	-	-
<b>Recommended</b>					

Supporting Detail for Recommended Alternative (EDRS Link [2021-04171](#)):

- **Public Safety Specialist:** Predominantly grass-oak woodland, brush and grey pines. Population density is low to medium in immediate project area but a large area of medium population density to the south and southwest. The area around this project does not have significant fires history.
- **Strike Tree Potential:** 287 total strike potential trees in the CPZ, LOW (0-5) tree strike potential in this segment does not suggest UG hardening is required.
- **Egress Considerations:** Lotus Road is the main evacuation route for civilians and main route for first responders.
- **PSPS Mitigation:** No mitigation potential due to limited scope of this hardening project; no critical / essential customers in this segment. To achieve PSPS reductions, additional scope would have to be included
- **Execution Timeline (Land/Bio/Cultural/Constructability):** Work required during the dry season (May 15 – Oct 15) and/or biomonitoring. Air permit may be required due to naturally occurring asbestos. Minimal mitigation expenses expected as long as work is within the road ROW.



	Key Questions	Outcome		
PPSP	Is this an area that is impacted directly by PPS (>8 Frequency or >1,200 Cust Impact)?	Y	N	4 events, OH preferred
	Are there any critical customers within zone necessary to protect?	Y	N	
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y	N	
PSS	Is the area being considered for HFRA Add/Remove?	Y	N	Ingress / Egress concerns
	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y	N	
Tree Strike	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y	N	Low
FSD	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y	N	
	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y	N	
EASOP	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y	N	Hybrid and UG within 100%
				Hybrid Preferred

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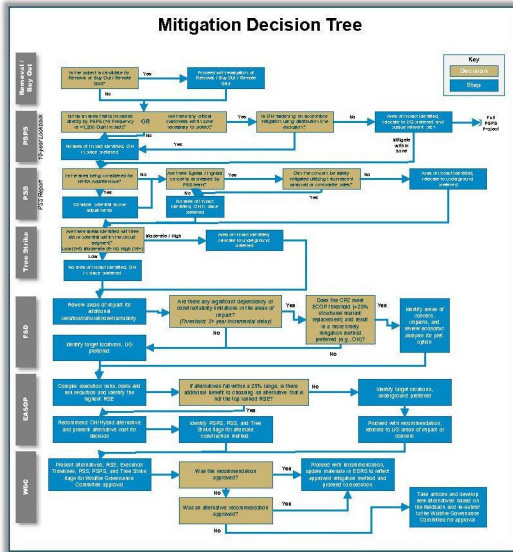
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**Inform: CWSP TOP 20% – PM# 35062375 Shingle Springs 2109 LR 9372 Ph 2**

Shingle Springs 2109 (9.21 Miles)		No System Hardening	Overhead Hardening	Under-grounding	Hybrid
Project Scope Risk Reduced After Mitigation		-	14.74	23.54	17.68
<b>Project Scope Residual Risk Value</b>		<b>23.78</b>	<b>9.04</b>	<b>0.24</b>	<b>6.10</b>
Overall Miles Installed		9.21 Existing OH	9.21	11.52	9.48
OH System Hardening Cost	\$1.9M/risk-mile	-	\$17.4M	-	\$11.9M (6.32 mi)
UG System Hardening Cost	\$5.3M/risk-mile	-	-	\$48.7M	\$11.7M (3.16 mi)
Line Removal Cost	-	-	-	-	-
<b>Total Capital Cost (AAACE Class 5)</b>			<b>\$17.4M</b>	<b>\$48.7M</b>	<b>\$23.6M</b>
Average O&M Cost (per year)			\$385k	\$150k	\$306k
NPV @ 6.8% discount rate			<b>(-\$23.1M)</b>	<b>(-\$51.3M)</b>	<b>(-\$28.3M)</b>
<b>Primary Filter</b>	\$ NPV per unit of risk (RSE)	-	<b>(-\$1.57M) – 1<sup>st</sup></b>	<b>(-\$2.2M) – 3<sup>rd</sup></b>	<b>(-\$1.60M) – 2<sup>nd</sup></b>
	PSS Preference (Ingress/egress/fire history)	-	<b>Not Preferred</b>	<b>Preferred</b>	<b>Preferred</b>
<b>Secondary Filter</b>	Strike Tree Potential	LOW (0-5)	Low Fall-In Risk	N/A	Low Fall-In Risk
	Ingress / Egress	LOW	Not preferred	Preferred	Preferred
	PSPS Mitigation (113 customers)	452 / 452 (0%)	452 / 452 (0%)	226 / 452 (50%)	452 / 452 (0%)
	Execution timeline (2021, 2022, 2022+)	-	2021	2022+	2022
	Other (Operational Considerations, etc.)	-	-	-	-
<b>Recommended</b>					

**Supporting Detail for Recommended Alternative (EDRS Link [2021-04169](#)):**

- **Public Safety Specialist:** Predominantly grass-oak woodland, brush and grey pines. Population density is low to medium in immediate project area but a large area of medium population density to the south and southwest. The area around this project does not have significant fires history.
- **Strike Tree Potential:** 287 total strike potential trees in the CPZ, LOW (0-5) tree strike potential in this segment does not suggest UG hardening is required.
- **Egress Considerations:** Lotus Road is the main evacuation route for civilians and main route for first responders.
- **PSPS Mitigation:** No mitigation potential due to limited scope of this hardening project; no critical / essential customers in this segment. To achieve PSPS reductions, additional scope would have to be included
- **Execution Timeline (Land/Bio/Cultural/Constructability):** Work required during the dry season (May 15 – Oct 15) and/or biomonitoring. Air permit may be required due to naturally occurring asbestos. Minimal mitigation expenses expected as long as work is within the road ROW.



Key Questions		Outcome		
PPSP	Is this an area that is impacted directly by PPS (>8 Frequency or >1,200 Cust Impact)?	Y	N	4 events, OH preferred
	Are there any critical customers within zone necessary to protect?	Y	N	
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y	N	
PSS	Is the area being considered for HFRA Add/Remove?	Y	N	Ingress / Egress concerns
	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y	N	
Tree Strike	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y	N	Low
	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y	N	
FSD	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y	N	Hybrid Preferred
	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y	N	

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## Inform: CWSP TOP 20% – PM# 35062376 Shingle Springs 2109 LR 35598

Shingle Springs 2109 (10.75 Miles)		No System Hardening	Overhead Hardening	Under-grounding	Hybrid
Project Scope Risk Reduced After Mitigation		-	21.07	33.64	24.27
Project Scope Residual Risk Value		33.98	12.91	0.34	9.71
Overall Miles Installed		10.75 Existing OH	10.75	13.29	11.02
OH System Hardening Cost	\$1.8M/risk-mile	-	\$19.6M	-	\$14.9M (8.21 mi)
UG System Hardening Cost	\$5.3M/risk-mile	-	-	\$56.8M	\$10.2M (2.81 mi)
Line Removal Cost	-	-	-	-	-
Total Capital Cost (AAACE Class 5)		-	\$19.6M	\$56.8M	\$25.1M
Average O&M Cost (per year)		-	\$419k	\$173k	\$357k
NPV @ 6.8% discount rate		-	(-\$25.8M)	(-\$59.9M)	(-\$30.5M)
Primary Filter	\$ NPV per unit of risk (RSE)	-	(-\$1.2M) – 1 <sup>st</sup>	(-\$1.8M) – 3 <sup>rd</sup>	(-\$1.3M) – 2 <sup>nd</sup>
	PSS Preference (Ingress/egress/fire history)	-	Satisfactory	Preferred	Preferred
Secondary Filter	Strike Tree Potential	LOW (0-5)	Low Fall-In Risk	N/A	Low Fall-In Risk
	Ingress / Egress	LOW	Satisfactory	Preferred	Preferred
	PSPS Mitigation (159 customers)	636 / 636 (0%)	636 / 636 (0%)	636 / 636 (0%)	636 / 636 (0%)
	Execution timeline (2021, 2022, 2022+)	-	2021	2022+	2022
	Other (Operational Considerations, etc.)	-	-	-	-

Recommended

### Supporting Detail for Recommended Alternative (EDRS Link [2021-05102](#)):

- **Public Safety Specialist:** Predominantly grass-oak woodland, brush and grey pines. Population density is low to medium in immediate project area but a large area of medium population density to the south and southwest. The area around this project does not have significant fires history.
- **Strike Tree Potential:** 287 total strike potential trees in the CPZ, LOW (0-5) tree strike potential in this segment does not suggest UG hardening is required.
- **Egress Considerations:** Lotus Road is the main evacuation route for civilians and main route for first responders.
- **PSPS Mitigation:** No mitigation potential due to limited scope of this hardening project; no critical / essential customers in this segment. To achieve PSPS reductions, additional scope would have to be included. PSPS was called 4 times for source side devices. 0 events for LR 35598.
- **Execution Timeline (Land/Bio/Cultural/Constructability):** Work required during the dry season (May 15 – Oct 15) and/or biomonitoring. Air permit may be required due to naturally occurring asbestos. Minimal mitigation expenses expected as long as work is within the road ROW.

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